



Attorney Docket No. ATI-204

**UNITED STATES PATENT AND TRADEMARK OFFICE**

Examiner: G. Arthur

Art Unit: 3661

Re: Application of:

David S. Breed et al.

Serial No.:

09/853,118

Filed:

May 10, 2001

For:

SYSTEM FOR DETERMINING THE  
OCCUPANCY STATE OF A SEAT IN A  
VEHICLE AND CONTROLLING A  
COMPONENT BASED THEREON

**DECLARATION OF INVENTOR DAVID S. BREED UNDER 37 C.F.R. §1.132**

Assistant Commissioner for Patents  
Washington, D.C. 20231

Dear Sir:

I, David S. Breed, do hereby declare that:

1. I am an inventor of the invention disclosed and claimed in the above-identified application.

2. I have been involved in the automotive industry for more than 30 years and particularly, among other things, in the design, development and implementation of automotive safety systems for preventing injuries to vehicular occupants. I am a named inventor of numerous patents, U.S. and foreign, directed to such automotive safety systems.

3. I, in collaboration with Wilbur DuVall, Wendell C. Johnson, Jeffrey L. Morin, Kunhong Xu and Michael Kussul, developed a particular system for determining the occupancy state of a seat in a vehicle including a plurality of transducers which provide data relating to the occupancy state of the seat and a processor for receiving and processing the data to obtain an

output indicative of the current occupancy state of the seat. This system is the subject of the above-identified patent application.

4. An important feature of the system is that it includes a processor which embodies a combination neural network which is trained in the sense that it is created from a plurality of data sets, each data set representing a different occupancy state of the seat and being formed from data from the transducers while the seat is in that occupancy state. As such, the combination neural network is by design capable of producing an output indicative of the current occupancy state of the seat upon inputting a data set representing the current occupancy state of the seat and which is formed from data from the transducers.

5. I believe that the creation of a trained combination neural network for use in monitoring an interior passenger compartment of a vehicle is novel.

6. I am familiar with the prior art cited by the Examiner in the rejection of the claims, namely, Corrado et al.

7. In my opinion, the prior art cited against the patentability of the claims as set forth prior to the amendment to accompanying this Declaration, i.e., Corrado et al., does not disclose the creation of a trained combination neural network. The pattern recognition algorithm used in Corrado et al. is sensor fusion as discussed in the specification on page 5.

8. Sensor fusion is not comparable or equivalent to a trained combination neural network in that it uses manually generated matrices of values, each representing a different occupancy state. Features extracted from signals generated by sensors are compared to the matrices of values to determine which comparison provides the best confidence level. By contrast, a trained combination neural network involves the input of data into a neural network-generating program which automatically creates one or more neural networks which can operationally receive input and provide output based on its training.

9. Since sensor fusion appears to be the essence of the Corrado et al. system, not only does Corrado et al. not teach or suggest using a trained pattern recognition algorithm, i.e., an algorithm trained on test data, in my opinion, one skilled in the art of occupancy determination systems would not have been motivated to eliminate the use of sensor fusion in Corrado et al. for another pattern recognition technique such as a trained combination neural network.

10. I hereby declare that all statements made herein of my own knowledge are true and that all statements on information and belief are believed to be true; and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001, Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued therefrom.

February 21, 2002

\_\_\_\_\_  
Date

A handwritten signature in black ink, appearing to read 'D. S. Breed', is written over a horizontal line.

David S. Breed